Repair-Parts

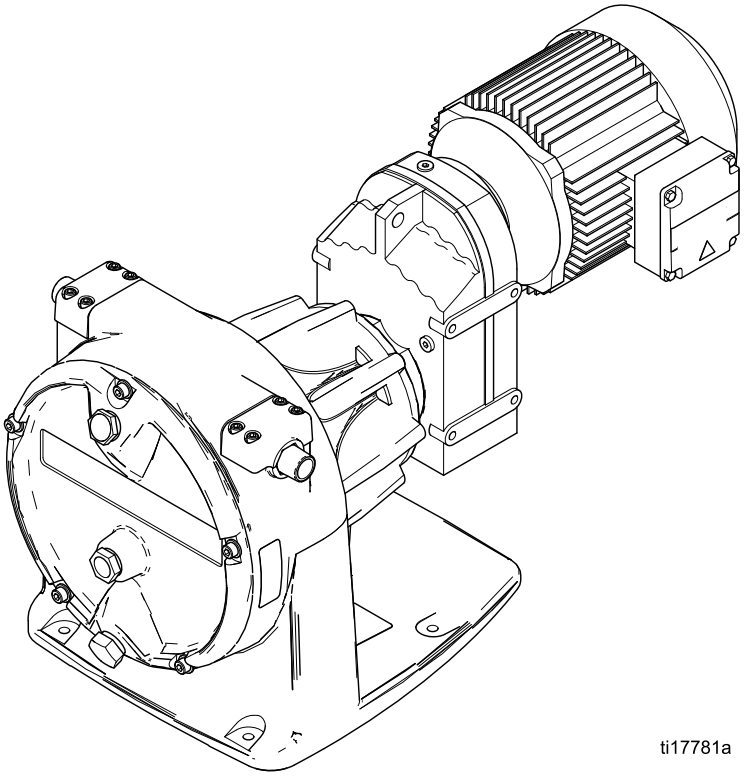
EP3 and EP4 Hose Pumps

3A1939G
EN

Electric-powered hose pump for use in fluid transfer and metering applications. For professional use only.
Not approved for use in explosive atmospheres or hazardous locations.

Important Safety Instructions
Read all warnings and instructions in this manual. Save these instructions.

125 psi (0.9 MPa, 9 bar) Maximum Fluid Working Pressure
See page 2 for model part numbers and information. do



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Models

Pump Model	Hose ID Size (mm)	Reference
EP3019	19	See Model EP3019 Pumps, page 22 for a complete list of pump part numbers and descriptive information.
EP4029	29	See Model EP4029 Pumps, page 23 for a complete list of pump part numbers and descriptive information.

Warnings

The following warnings are for the setup, use, grounding, maintenance and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

WARNING

FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Ground all equipment in the work area. See **Grounding** instructions.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail.
- If there is static sparking or you feel a shock, **stop operation immediately.** Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

ELECTRIC SHOCK HAZARD

This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.

- Turn off and disconnect power at main switch before disconnecting any cables and before servicing or installing equipment.
- Connect only to grounded power source.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

MOVING PARTS HAZARD

Moving parts can pinch, cut or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.

WARNING

ENTANGLEMENT HAZARD
Rotating parts can cause serious injury.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Do not wear loose clothing, jewelry or long hair while operating equipment.
- Equipment can start without warning. Before checking, moving or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.

TOXIC FLUID OR FUMES
Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read MSDSs to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

PERSONAL PROTECTIVE EQUIPMENT
You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

PRESSURIZED EQUIPMENT HAZARD
Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.

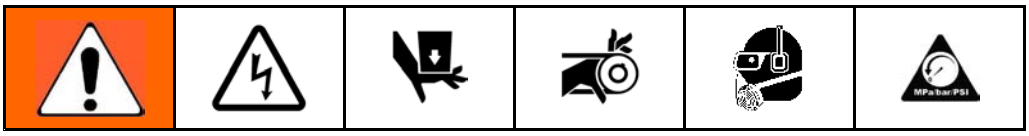
- Follow the **Pressure Relief Procedure** when you stop spraying/dispensing and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.

WARNING

EQUIPMENT MISUSE HAZARD
Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

Troubleshooting



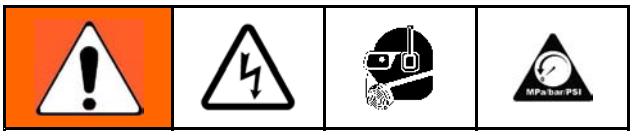
NOTE: Check all possible remedies before disassembling the pump.

Problem	Cause	Solution
Hammering in piping.	Inlet or outlet pipe diameters too small.	Increase pipe size or add pulsation dampeners.
	High pump speed.	Reduce speed of pump.
	Inlet or outlet connections not properly anchored.	Secure piping.
	High Inlet or outlet pressures.	Add pulsation dampeners.
High pump temperature.	Low lubricant level.	Add hose lube to the proper level.
	Improper lubricant.	Use only Graco hose lube for low temperature operation.
	Pumped fluid temperature too high.	Consult your Graco distributor for maximum temperature limits of your pump.
	High pump speed/pump undersized.	Reduce the pump speed or switch to a larger pump.
High outlet pressure.	Blocked outlet line.	Clear any obstructions in the outlet line.
	Narrowed pipe diameter due to settled solids.	Determine if solids have settled in piping and flush/remove as required.
	Viscosity or specific gravity of pumped fluid too high.	Consult your Graco distributor for suitable operating conditions for your pump.
Low inlet pressure.	Failed hose.	Check to see if the hose has failed. If so, replace with a new hose and lubricant.
	Blocked inlet line.	Clear any obstructions in the inlet line.
	Inlet line too long or too small.	Try to locate the pump as near to the fluid source as possible. Oversize the inlet piping when possible.
	Viscosity or specific gravity of pumped fluid too high.	Consult your Graco distributor for suitable operating conditions for your pump.
Low flow.	Failed hose.	Check to see if the hose has failed. If so, replace with a new hose and lubricant.

Problem	Cause	Solution
Poor hose life.	Chemical incompatibility.	Consult your Graco distributor to see if you have the correct hose for your application.
	Normal wear.	The hose may have failed due to normal wear. Replace as required.
	Failure due to pulsations.	If you pump is equipped with a pulsation dampener, adjust its pressure. If you do not have a dampener, consult your Graco distributor.
	Too high outlet pressure.	Check items listed in “High outlet pressure.” Running the pump against a closed valve, even for a short amount of time, may damage hose.
	Settled solids in hose.	Flush the pump and hose prior to turning the pump off.
Lubricant leaks	Hose lube leaking from front cover.	Cover bolts over-tightened. Refer to torque specifications in Install the Front Cover, page 16.
	Hose lube leaking from hose clamps.	Pump housing overfilled. Check hose lube level and adjust as necessary.
Hose failed because it wrapped around roller.	Pump was operated against a closed outlet valve or blocked line.	Replace hose. Check pressure relief system. Check that valves are open. Clear any blockages.

Repair

Before You Start



1. Flush the pump.
2. Relieve the pressure.
3. Disconnect power to the pump.
4. Make sure the pump is electrically isolated. Unexpected operation of the pump can cause serious injury. Remove the fan cover only after the motor has been locked out.

Disassembly

Drain the Oil

1. Hold a pail under the drain plug (17) and unscrew the plug to drain the lubricating oil. Dispose of the oil properly. Take care, as the oil may be contaminated by the pumped fluid.
2. Remove the vent plug (15) and flush the pump housing with a compatible solvent.

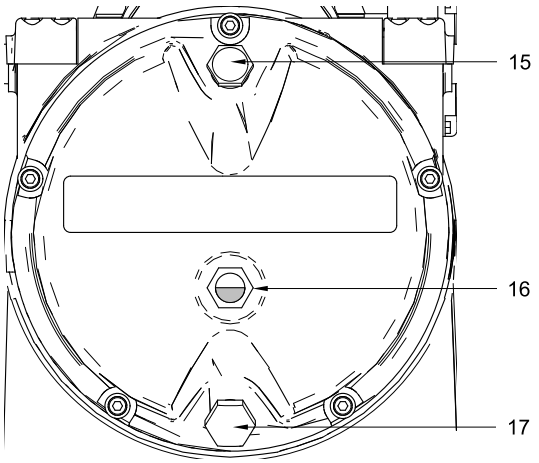


Figure 1 Pump Drain and Vent

Remove the Front Cover

1. Unscrew the socket head cap screws (14) and washers (13) that hold the front cover (12), removing the top screw and washer last. Take the cover off the pump. See Fig. 5, page 11.
2. Remove the front cover gasket (11).
3. Inspect and clean the sight glass (16) and cover (12), then set aside.

Remove the Hose

1. See Fig 5, page 11. Remove the screws holding the motor fan cover (FC). Turn the fan by hand until the roller (102) stops at the bottom of the pump housing (1) in the 6 o'clock position.

   NOTE: Low RPM pumps and high ratio gearboxes may require many turns of the motor fan to move the roller to the 6 o'clock position.

2. Remove the four screws (21) from each barb clamp (20) on the inlet and outlet ports of the pump and lift off the clamps.

3. *On EP4 Pumps only:* Remove the top half of the barbed fitting positioning washer and keep for reuse. The bottom half of the washer is welded in place and cannot be removed.

4. If possible, ensure that the hose clamps (104) are positioned with the clamp portion at the top. Cut through the clamp with a hack saw or rotary tool. Be careful not to damage the hose (103) or the pump housing (1).

Figure 2 Cut the Clamp

5. Using a screwdriver, remove the clamp, then remove the band.

Figure 3 Remove the Clamp

6. The hose assembly is seated firmly in the pump housing (1). Place a smooth, small diameter metal rod into the barbed fittings (105) and lift the hose assembly to free it. Pull the hose so it extends about 2–3 in. (51–76 mm) out of the pump.

7. Remove one barbed fitting (105) from the hose (103).

8. Grasp the hose (103) from the inside of the pump housing (1) and pull it into the housing. The center of the hose will still be held by the roller in the 6 o'clock position.

9. Remove the second barb assembly as described above.

10. Turn the motor by hand until the roller (102) is not compressing the hose (103). This will be near the 9 o'clock or 3 o'clock position.

Figure 4 Roller in 3 O'Clock Position

11. Pull the other end of the hose into the pump housing (1).

12. Remove and safely discard the used hose, per your facility's waste disposal policy.

Remove the Roller

1. Using external snap ring pliers, remove the roller retaining ring (9) from the front of the eccentric shaft (7). Slide the bushing (10) off the shaft.
2. Pull the roller (102) off the shaft. It should slide off easily.
3. *On EP3 Pumps only:* Slide the second bushing (10) off the shaft. Remove the second roller retaining ring (9).
4. Inspect the inside and outside diameter of the roller (102), and replace it if worn or damaged.

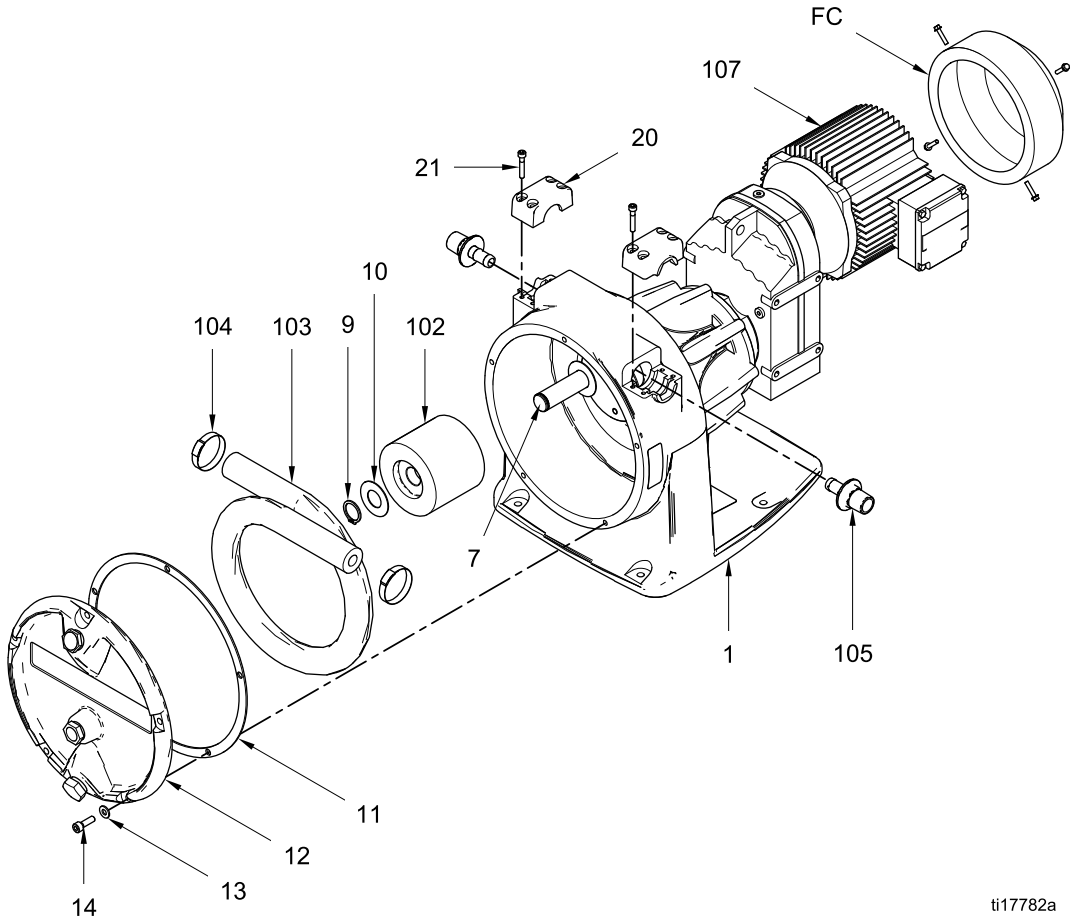


Figure 5 Remove the Hose and Roller

Remove the Eccentric Shaft

1. Using external snap ring pliers, remove the eccentric shaft retaining ring (8) from the motor output shaft (2). See Fig 6.
2. Remove the eccentric shaft (7) from the motor output shaft. **Be sure to retain the eccentric shaft key (6).**

   NOTE: You may need to use a puller to disengage the eccentric shaft from the motor output shaft.

Remove the Motor Output Shaft

NOTE: The motor output shaft is held in place with a retaining ring (3) located behind the outer u-cup seal (4). The outer seal must be removed before removing the retaining ring. This seal will likely be damaged when removed since it is held in place by a tight press fit.

1. Using a flat head screw driver, remove the outer u-cup seal (4).
2. Using internal snap ring pliers, remove the retaining ring (3) from the pump housing (1).
3. Remove the four screws (109) and washers (108) holding the gearbox and motor assembly (107) to the pump housing (1). Remove the gearbox and motor assembly to allow access to the inner u-cup seal (5). **Be sure to retain the motor output shaft key (106).**

   NOTE: For motor and gearbox repair information, contact SEW-Eurodrive.
4. Remove the inner u-cup seal (5). This seal will likely be damaged when removed since it is held in place by a tight press fit.
5. Tap the gearbox end of the shaft (2) with a rubber mallet to drive the shaft out through the front of the pump housing (1).

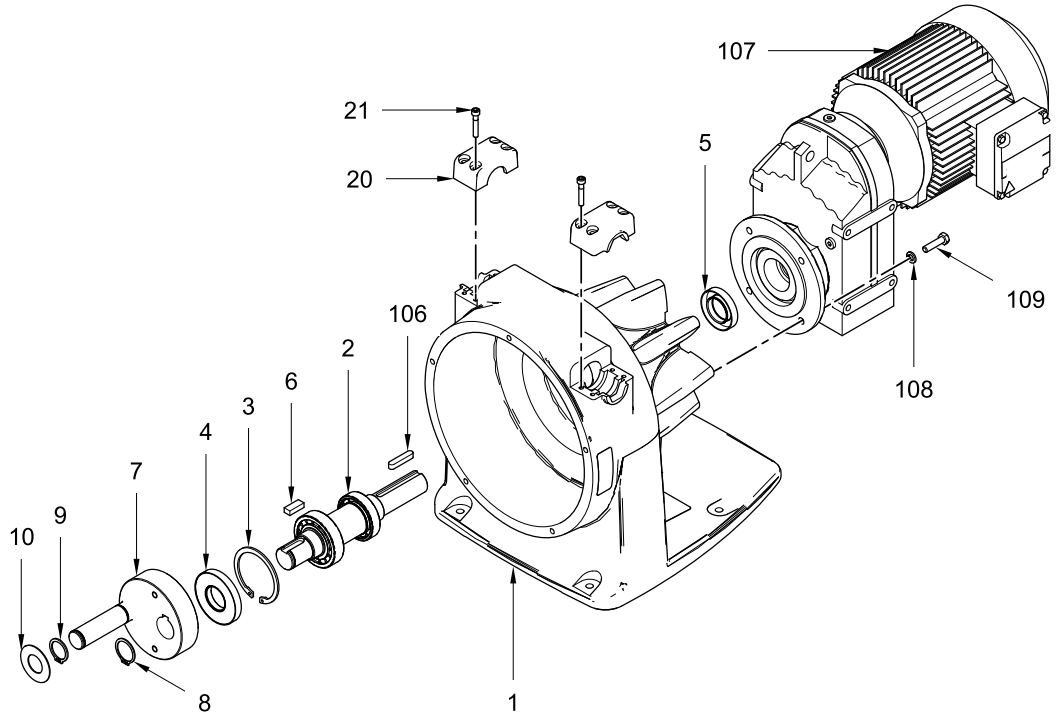


Figure 6 Remove the Eccentric Shaft and Motor Output Shaft

Reassembly

Clean and Inspect All Parts

NOTICE

Use only genuine Graco replacement parts. Non-standard parts will void your warranty and may damage your equipment.

- Discard all used seals, gaskets and worn parts.
- Ensure that all new and existing parts are clean and undamaged.
- Thoroughly clean all parts with a compatible solvent and inspect for damage or wear. Replace all gaskets, washers, worn parts and hardware as necessary.
- Inspect the inner diameter of the pump roller. If the surface has been worn, replace the roller.
- Inspect the bearings on the motor output shaft (2). If the bearings are worn, replace the shaft.
- Inspect the shaft and bearing bore in the pump housing (1). Ensure it is round, without grooves or other signs of wear, and free of dirt, filings, or other debris. A dirty or damaged bearing bore will greatly reduce the life of the bearings.
- Inspect all metal parts for signs of wear or cracks. Replace all worn parts.

NOTICE

The pump housing is aluminum. To help prevent galling, blow out the threads with compressed air before installing any fittings or fasteners.

Install the Motor Output Shaft

1. Inspect the bearings and make sure that all rotate freely and are seated against the shoulder of the shaft (2). See Fig 7.
2. Coat the outer races of the shaft bearings and the inner diameter of the bearing bore with light lubricating oil. Make sure there is no dirt or debris on either the bearings or the bearing bore.
3. Insert the shaft (2) into the pump housing (1) from the front, making sure that the bearings engage the bearing bore flush and straight. Tap the roller end of the shaft with a rubber mallet until the shaft is firmly seated in the pump housing.

   NOTICE

   Do not force the shaft and bearings into the pump housing. This may cause damage to the bearings or the housing.

4. Install the bearing retaining ring (3) in front of the outer bearing.

Install the Seals

1. Press a new inner u-cup seal (5) onto the gearbox end of the shaft (2) and into the bore at the rear of the pump housing (1). The lips of the u-cup must face into the pump housing. See Fig 7.
2. Grease the pump with NLGI #2 type grease. Remove the plug (18) from the pump housing and replace with a zerk fitting. Add grease until it passes through the outer bearing of the shaft. This provides a visual reference of the proper amount of grease. Do not over-grease. Remove the zerk fitting and reinstall the plug (18).
3. Press a new outer u-cup seal (4) onto the pump end of the shaft (2) and into the bore at the front of the pump housing (1). The lips of the u-cup must face toward the shaft bearings.
4. Make sure that the shaft rotates smoothly.

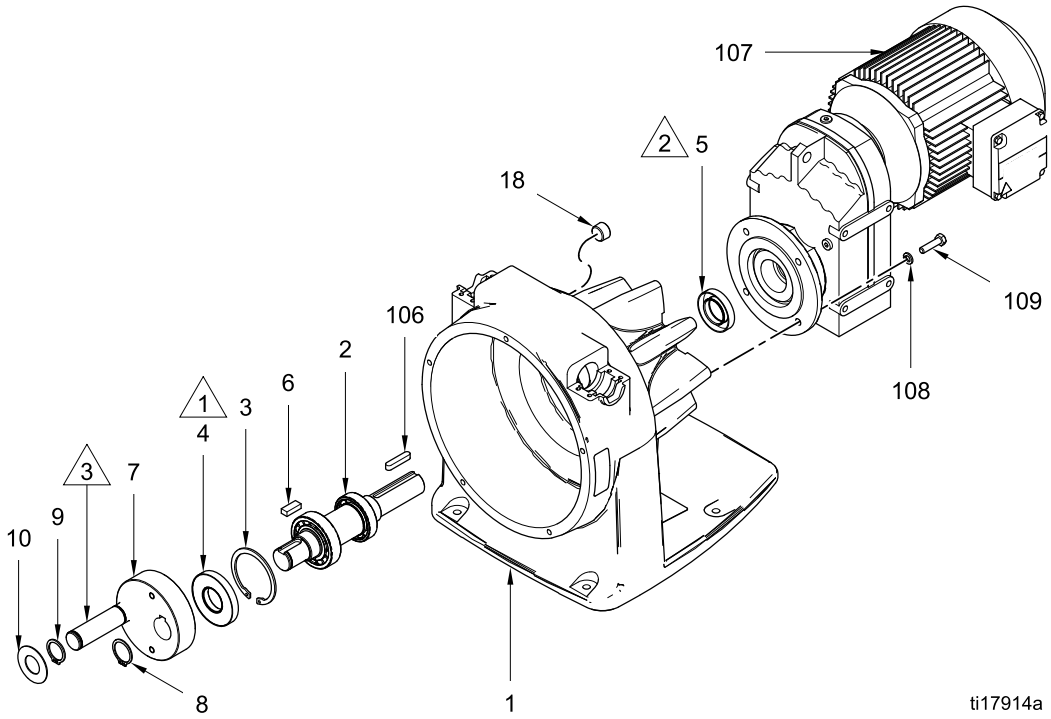


Figure 7 Install the Motor Output Shaft and Eccentric Shaft

Key for Figure 7	
Note	**Description**
1	Lips of the u-cup (4) must face toward the shaft bearings.
2	Lips of the u-cup (5) must face into the pump housing.
3	Lubricate with hose lube.

Install the Motor and Gearbox

1. Lubricate the motor output shaft (2) and the keyway with an anti-seize compound.
2. The gearbox is manufactured with a hollow bore. Remove the plastic cap on the back of the gearbox to help with alignment of the shaft.
3. Slide the motor and gearbox assembly (107) onto the shaft (2). Install the key (106). Secure to the pump housing (1) with the four screws (109) and washers (108).

Install the Eccentric Shaft

1. Ensure that the keyway on the motor output shaft (2) is facing up. It may be necessary to turn the motor fan by hand to position the shaft.
2. Slide the eccentric shaft (7) over the end of the motor output shaft (2). Install the key (6). The eccentric and the key should slide easily together.
3. Secure the eccentric shaft (7) with the eccentric shaft retaining ring (8).

Install the Roller

NOTE: The roller size is typically marked on the roller. Verify that you have the correctly sized roller.

1. *On EP3 Pumps only:* Install a roller retaining ring (9) using external snap ring pliers. Make sure that the ring is fully seated in the groove on the eccentric shaft (7). Install a bushing (10). See Fig 8.
2. Lubricate the eccentric shaft (7) with hose lube. Slide the roller (102) onto the shaft. The roller should fit onto the shaft snugly with minimal radial movement.
3. Install a bushing (10) and a roller retaining ring (9). Verify that the roller (102) turns freely on the shaft (7).

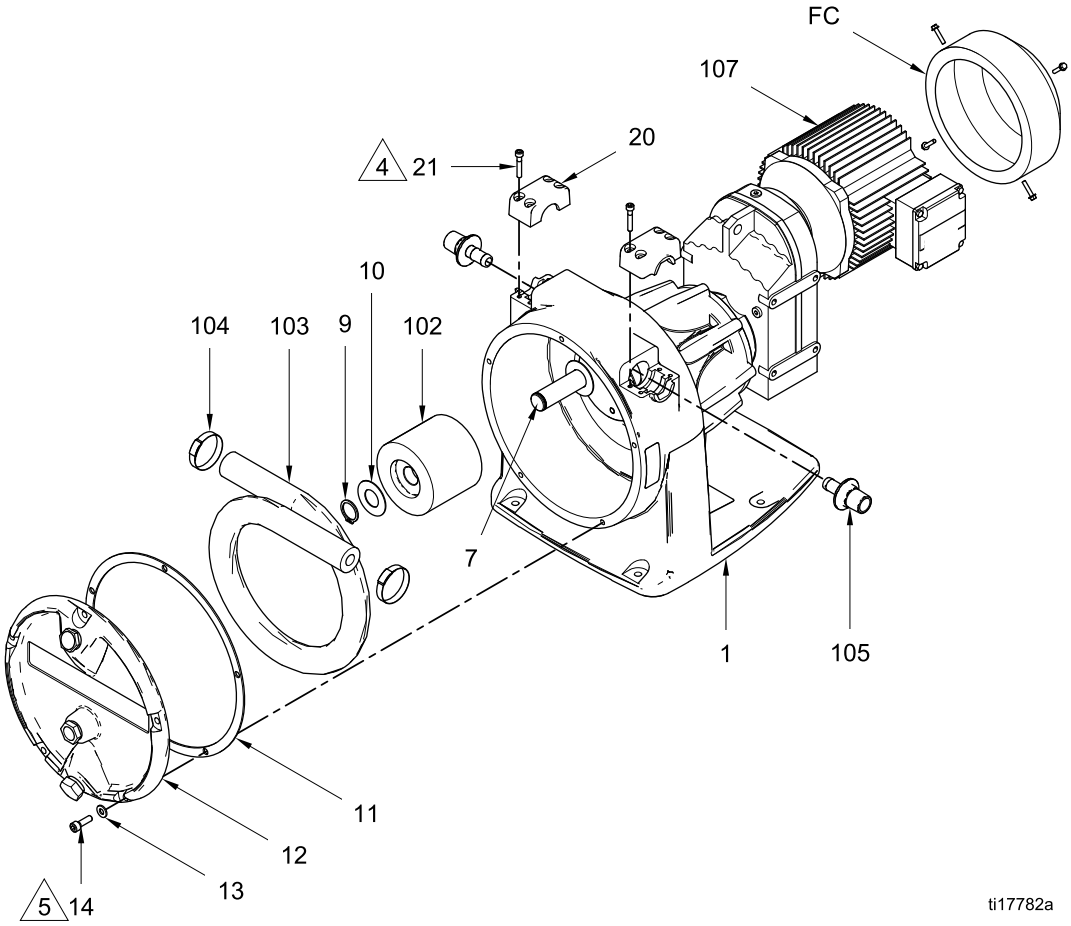


Figure 8 Install the Roller, Hose, and Front Cover

Key for Figure 8	
Note	**Description**
4	EP3019: Torque to 115 in-lb (13.0 N•m). EP4029: Torque to 140 in-lb (16.0 N•m).
5	EP3019: Torque to 25 in-lb (2.8 N•m). EP4029: Torque to 35 in-lb (4.0 N•m).

Install the Hose

1. Move the roller (102) by turning the motor fan until the roller reaches the 6 o'clock position.

Figure 9 Roller in 6 O'Clock Position

2. Install one end of the hose (103) through the rear port of the pump housing on the left hand side when looking at it from the front. Extend the hose 2-3 in. (51–76 mm) beyond the pump housing (1).
3. Slide the hose clamp (104) over the hose and install the barbed fitting (105).
4. Position the hose clamp about 1/4 in. (6 mm) from the end of the hose. Ensure that the band will fit into the recesses of the barb clamp (20) and pump housing (1). Using the 24L497 Clamping Tool, tighten the clamp to secure the hose onto the barbed fitting.

Figure 10 Tighten the Clamp

5. Cut the excess band, then flatten the end with a rubber mallet.

Figure 11 Seat the Barbed Fitting

6. Push the assembled hose end into the barb clamp recess, using a smooth metal rod to hold the barb in place. The fit may be tight; use a rubber mallet to seat the barbed fitting assembly.

   NOTE: Verify that the barbed fitting (105) is correctly positioned. The hex on the barbed fitting (105) must be aligned with the corresponding hex on the pump housing. This will hold the barbed fitting firmly in place.

7. *On EP4 Pumps only:* Install the top half of the barbed fitting positioning washer. The bottom half of the washer is welded in place.
8. Install the clamp (20) and screws (21). Torque the screws to 115 in-lb (13 N•m) for the EP3 Pumps and to 140 in-lb (16.0 N•m) for the EP4 Pumps.
9. Loop the hose (103) 360 degrees and pass the other end through the front port on the right hand side of the pump housing (1). Assemble the barbed fitting (105) and clamp (104) as explained in steps 3–8.
10. Turn the roller (102) to the 12 o'clock position to compress the hose, then push the hose into the pump housing. Use a rubber mallet if the hose is difficult to seat.
11. Return the roller (102) to the 6 o'clock position. It is critical that the roller is at the bottom of the pump to ensure the correct capacity of hose lube. Reinstall the motor fan cover.

NOTICE

The roller must be returned to the 6 o'clock position before installing the front cover. Failure to do so will result in overfilling of the pump with hose lube.

Install the Front Cover

1. Scrape all debris from the gasket mating surfaces on the front cover (12) and the pump housing (1), then clean with acetone or brake cleaner to remove any residue. This is critical to ensure a leak-free assembly.

   NOTE: The pump housing and front cover must be free of dirt, debris and residue to ensure a leak-free seal.

   NOTE: The hole pattern of the front cover (12), gasket (11), and housing are asymmetric. This ensures that the gasket and cover go on in only one direction.

2. Line up the holes in the gasket (11) with the holes in the cover (12). Place the gasket on the cover.
3. Line up the front cover (12) and gasket (11) with the pump housing (1) by placing a socket head cap screw (14) and washer (13) in the top hole and screwing it into the pump housing.
4. Install the remaining front cover screws (14) and washers (13). Torque the screws oppositely to 25 in-lb (2.8 N•m) for the E3 Pumps and to 35 in-lb (4.0 N•m) for the E4 Pumps.

   NOTE: Do not over-tighten the front cover screws. This will cause the gasket to deform and the pump to leak.

Lubricate the Pump

NOTICE

The pump housing is aluminum. To help prevent galling, blow out the threads with compressed air before installing any fittings or fasteners.

1. Wrap the drain plug (17) threads with PTFE tape and install the plug.
2. Wrap the sightglass (16) threads with PTFE tape and install.
3. Using a funnel, add hose lube through the vent port until the oil becomes visible through the sightglass. The oil level must not rise above the halfway point on the roller.

NOTE: Do not overfill. Overfilling the pump housing with hose lube will increase pressure in the pump housing, causing hose lube to leak from the cover or the clamp area. See the table below for the correct amount of hose lube for your pump. Pre-measuring the correct amount will help prevent overfilling.

Pump Model	Amount of Hose Lube (approximate)
EP3019	0.25 gal. (1 liter)
EP4029	0.5 gal. (2 liters)

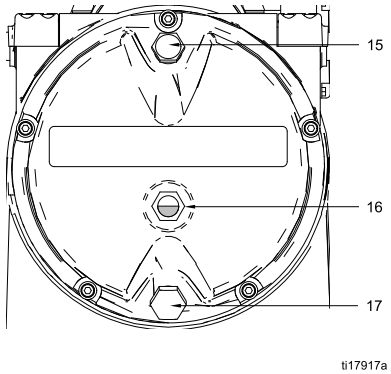


Figure 12 Hose Lube Level in Sightglass

NOTE: Higher operating speeds provide more vigorous lubrication, which may cause splashing of oil. When operating at a speed of 85 RPM or greater, reduce the amount of hose lube as shown in the table below.

Operating Speed (RPM)	Amount of Hose Lube
0–84	As recommended in the table above.
85–104	70% of recommended quantity
105–114	60% of recommended quantity
115 and above	50% of recommended quantity

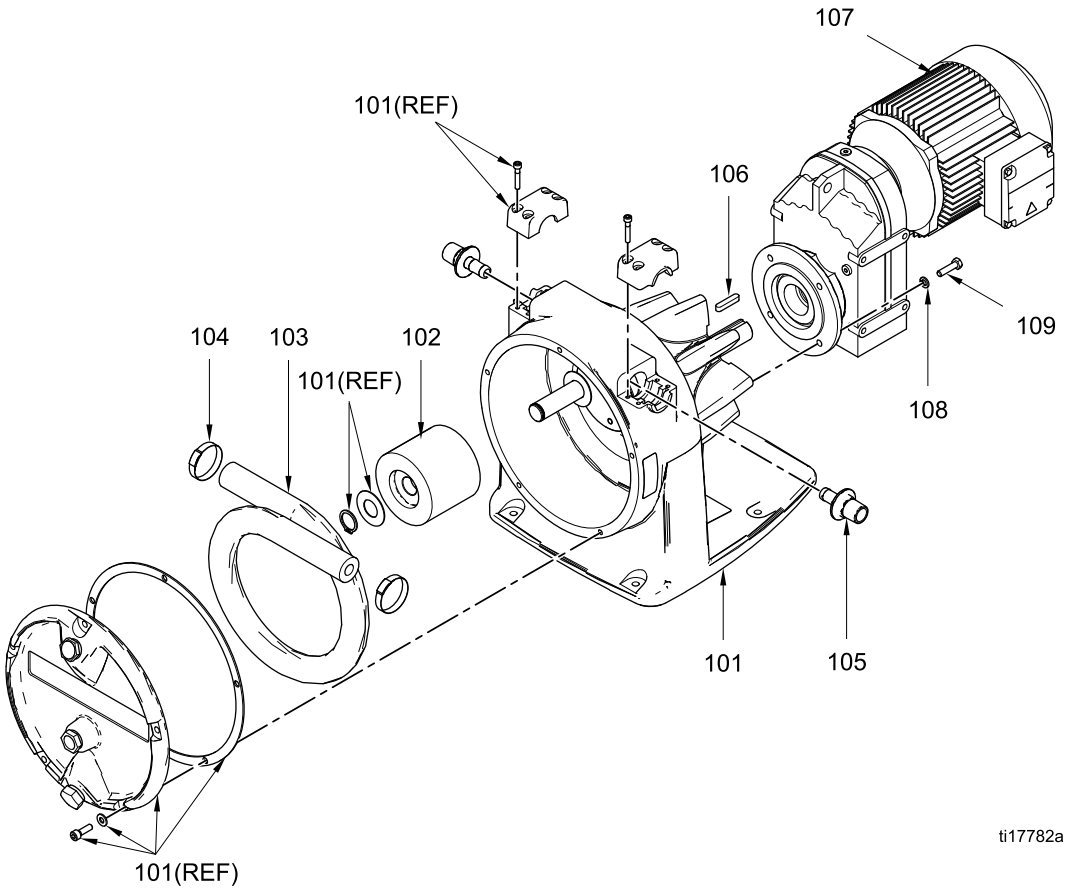
4. Wrap the vent plug (15) threads with PTFE tape and screw it into the vent port carefully.

Notes

Parts

EP3 and EP4 Hose Pump Assembly

EP3019 and EP4029 Pumps, Series A
Includes items 101–119



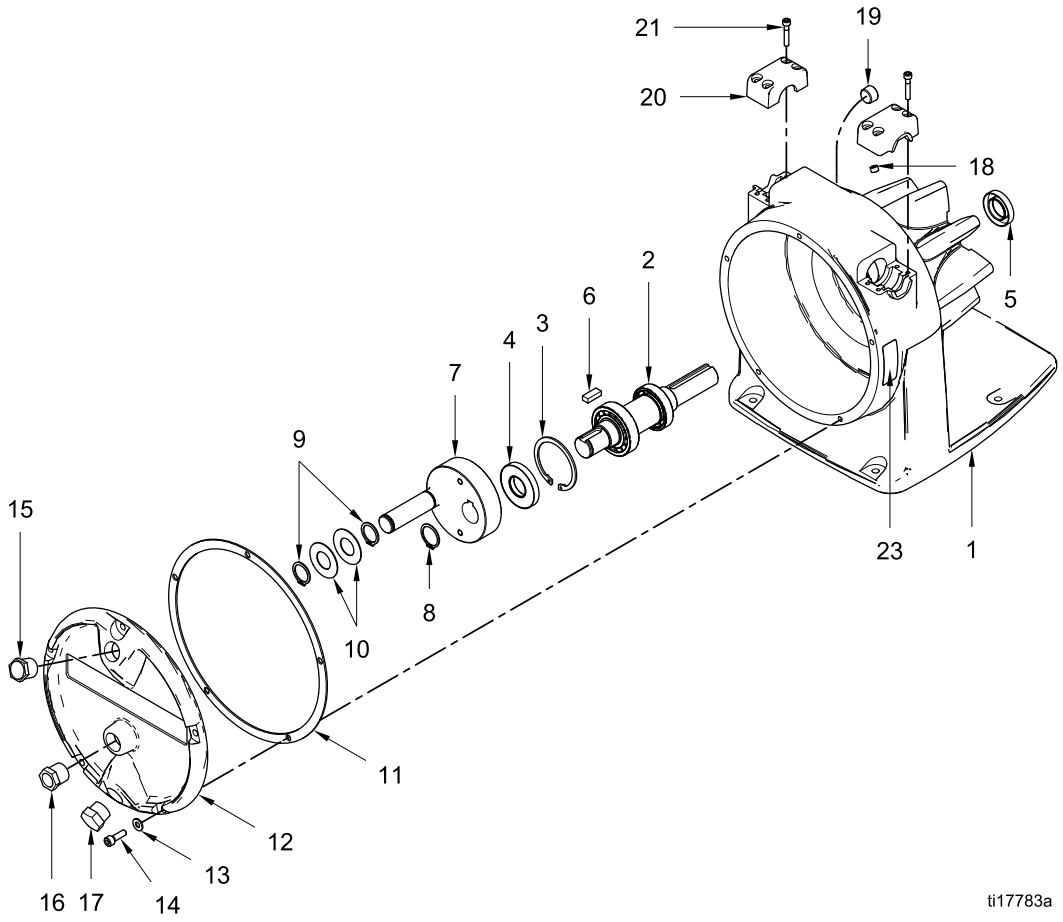
Ref. No.	Part No.	Description	Qty
101	24L888	ASSEMBLY, pump; EP3019; see Bare Pump Assembly, page 20	1
	24L889	ASSEMBLY, pump; EP4029; see Bare Pump Assembly, page 20	1
102	24K589	ROLLER KIT; for EP3019; includes items 9 and 10 (page 20)	1
	24K614	ROLLER KIT; for EP4029; includes items 9 and 10 (page 20)	1
103	See	HOSE KIT; includes two hose clamps (104)	1
104	24M117	KIT, hose clamp; package of 10	1
105	See Pump Matrix, page 22	BARBED FITTING KIT; for EP3019; kit includes one barbed fitting and one clamp (104)	2
		BARBED FITTING KIT; for EP4029; kit includes one barbed fitting, one clamp (104), and one half-washer	2
106	---	KEY, motor shaft; EP3019	1
	---	KEY, motor shaft; EP4029	1
107		MOTOR and GEARBOX (see Pump Matrix, page 22 for the motor and gearbox used on your pump)	1
	24L987	1.5 HP; 35.91 gear ratio; EP3019	
	24L988	1.0 HP; 100.36 gear ratio; EP3019	
	24L989	2.0 HP; 19.70 gear ratio; EP4029	
	24L990	2.0 HP; 34.29 gear ratio; EP4029	
	24L991	2.0 HP; 79.72 gear ratio; EP4029	
108	---	WASHER, split lock; M8; EP3019	4
	---	WASHER, split lock; M10; EP4029	4
109	---	SCREW, cap, hex hd; M8 x 25 mm; EP3019	4
	---	SCREW, cap, hex hd; M10 x 30 mm; EP4029	4
119 u	24K694	HOSE LUBE, glycerin; 1 gallon (3.8 liter); not shown	1

u*Hose lube is also available in a 1 quart (0.95 liter) bottle. Order Part No. 24K692.*

Parts labeled --- are not available separately.

Bare Pump Assembly

Model 24L888 Pump Assembly, Series A, for EP3019 Pumps
Includes items 1–23
Model 24L889 Pump Assembly, Series A, for EP4029 Pumps
Includes items 1–23



Ref. No.	Part No.	Description	Qty
1	---	HOUSING, pump; for Pump 24L888	1
	---	HOUSING, pump; for Pump 24L889	1
2	24K597	SHAFT KIT, output, motor; for Pump 24L888; includes items 3, 4, 5, 6, 8, 18, and grease zerk fitting	1
	24K914	SHAFT KIT, output, motor; for Pump 24L889; includes items 3, 4, 5, 6, 8, 18, and grease zerk fitting	1
3	---	RING, retaining, bearing; for Pump 24L888	1
	---	RING, retaining, bearing; for Pump 24L889	1
4	---	SEAL, u-cup, outer; for Pump 24L888	1
	---	SEAL, u-cup, outer; for Pump 24L889	1
5	---	SEAL, u-cup, inner; for Pump 24L888	1
	---	SEAL, u-cup, inner; for Pump 24L889	1
6	---	KEY, eccentric shaft; for Pump 24L888	1
	---	KEY, eccentric shaft; for Pump 24L889	1
7	24K596	ECCENTRIC SHAFT KIT; for Pump 24L888; includes items 6 and 8	1
	24K913	ECCENTRIC SHAFT KIT; for Pump 24L889; includes items 6 and 8	1
8	---	RING, retaining, eccentric shaft; for Pump 24L888	1
	---	RING, retaining, eccentric shaft; for Pump 24L889	1
9	---	RING, retaining, roller; for Pump 24L888	2
	---	RING, retaining, roller; for Pump 24L889	1
10	---	BUSHING; for Pump 24L888	2
	---	BUSHING; for Pump 24L889	1
11	24K595	GASKET KIT; for Pump 24L888	1
	24K912	GASKET KIT; for Pump 24L889	1
12	24K594	COVER KIT; for Pump 24L888; includes items 11, 13, 14, 15, 16, and 17	1
	24K911	COVER KIT; for Pump 24L889; includes items 11, 13, 14, 15, 16, and 17	1
13	---	WASHER, flat; M8; for Pump 24L888	5
	---	WASHER, flat; M8; for Pump 24L889	7
14	---	SCREW, cap, socket hd; M8 x 25 mm; for Pump 24L888	5
	---	SCREW, cap, socket hd; M8 x 25 mm; for Pump 24L889	7
15	---	VENT, breather plug; all pumps	1
16	---	SIGHTGLASS; for Pump 24L888	1
	---	SIGHTGLASS; for Pump 24L889	1
17	---	PLUG, drain; 3/4 npt; all models	1
18	---	PLUG, pipe, headless; 1/8 npt; all models	1
19	---	PLUG, pipe, headless; 1/2 npt; all models	1
20	24K598	CLAMP KIT, barb; for Pump 24L888; includes item 21 (4)	2
	24K915	CLAMP KIT, barb; for Pump 24L889; includes item 21 (4)	2
21	---	SCREW, cap, socket hd; M6 x 35 mm; for Pump 24L888	8
	---	SCREW, cap, socket hd; M8 x 50 mm; for Pump 24L889	8
23 ▲	16K630	LABEL, warning; all models	1

Parts labeled --- are not available separately.

Pump Matrix

Model EP3019 Pumps

With 19 mm ID Hose and Roller Installed

Pump Part No.	Pump Series	Hose Kit (Ref. 103)	Hose Inner Material	Hose Stripe Color	Barbed Fitting Kit (Ref. 105)	Barbed Fitting Material	Motor and Gearbox (Ref. 107)
24L542	B	24K533	EPDM	Blue	24K592	SST	24L988
24L543	B	24K533	EPDM	Blue	24K593	Hastelloy	24L988
24L546	B	24K532	Natural Rubber	None	24K592	SST	24L988
24L547	B	24K537	CSM	Orange	24K592	SST	24L988
24L548	B	24K537	CSM	Orange	24K593	Hastelloy	24L988
24L549	B	24K534	Nitrile	Yellow	24K592	SST	24L988
24L550	B	24K534	Nitrile	Yellow	24K593	Hastelloy	24L988
24L556	B	24K533	EPDM	Blue	24K592	SST	24L987
24L557	B	24K533	EPDM	Blue	24K593	Hastelloy	24L987
24L560	B	24K532	Natural Rubber	None	24K592	SST	24L987
24L561	B	24K537	CSM	Orange	24K592	SST	24L987
24L562	B	24K537	CSM	Orange	24K593	Hastelloy	24L987
24L563	B	24K534	Nitrile	Yellow	24K592	SST	24L987
24L564	B	24K534	Nitrile	Yellow	24K593	Hastelloy	24L987
24L570	B	24K533	EPDM	Blue	24K592	SST	24L986
24L571	B	24K533	EPDM	Blue	24K593	Hastelloy	24L986
24L574	B	24K532	Natural Rubber	None	24K592	SST	24L986
24M791	A	24K533	EPDM	Blue	24K592	SST	None
24M792	A	24K533	EPDM	Blue	24K593	Hastelloy	None
24M795	A	24K532	Natural Rubber	None	24K592	SST	None
24M796	A	24K537	CSM	Orange	24K592	SST	None
24M797	A	24K537	CSM	Orange	24K593	Hastelloy	None
24M798	A	24K534	Nitrile	Yellow	24K592	SST	None
24M799	A	24K534	Nitrile	Yellow	24K593	Hastelloy	None
24P087	A	24K527	CSM	Orange	24K590	SST	24L988
24W557	A	24K537	CSM	Orange	24V972	PVDF	24L987
24W556	A	24K537	CSM	Orange	24V972	PVDF	24L988
24W558	A	24K537	CSM	Orange	24V972	PVDF	None

** Food grade hose inner material is white in color.*

Model EP4029 Pumps

With 29 mm ID Hose and Roller Installed

Pump Part No.	Pump Series	Hose Kit (Ref. 103)	Hose Inner Material	Hose Stripe Color	Barbed Fitting Kit (Ref. 105)	Barbed Fitting Material	Motor and Gearbox (Ref. 107)
25L024	B	24K553	EPDM	Blue	24K617	SST	24L991
25L025	B	24K553	EPDM	Blue	24K910	Hastelloy	24L991
25L028	B	24K552	Natural Rubber	None	24K617	SST	24L991
25L029	B	24K557	CSM	Orange	24K617	SST	24L991
25L030	B	24K557	CSM	Orange	24K910	Hastelloy	24L991
25L031	B	24K554	Nitrile	Yellow	24K617	SST	24L991
25L032	B	24K554	Nitrile	Yellow	24K910	Hastelloy	24L991
25L038	B	24K553	EPDM	Blue	24K617	SST	24L990
25L039	B	24K553	EPDM	Blue	24K910	Hastelloy	24L990
25L042	B	24K552	Natural Rubber	None	24K617	SST	24L990
25L043	B	24K557	CSM	Orange	24K617	SST	24L990
25L044	B	24K557	CSM	Orange	24K910	Hastelloy	24L990
25L045	B	24K554	Nitrile	Yellow	24K617	SST	24L990
25L046	B	24K554	Nitrile	Yellow	24K910	Hastelloy	24L990
25L052	B	24K553	EPDM	Blue	24K617	SST	24L989
25L053	B	24K553	EPDM	Blue	24K910	Hastelloy	24L989
25L056	B	24K552	Natural Rubber	None	24K617	SST	24L989
25L057	B	24K557	CSM	Orange	24K617	SST	24L989
25L058	B	24K557	CSM	Orange	24K910	Hastelloy	24L989
25L059	B	24K554	Nitrile	Yellow	24K617	SST	24L989
25L060	B	24K554	Nitrile	Yellow	24K910	Hastelloy	24L989
24M816	A	24K553	EPDM	Blue	24K617	SST	None
24M817	A	24K553	EPDM	Blue	24K910	Hastelloy	None
24M820	A	24K552	Natural Rubber	None	24K617	SST	None
24M821	A	24K557	CSM	Orange	24K617	SST	None
24M822	A	24K557	CSM	Orange	24K910	Hastelloy	None
24M823	A	24K554	Nitrile	Yellow	24K617	SST	None
24M824	A	24K554	Nitrile	Yellow	24K910	Hastelloy	None
24W561	A	24K557	CSM	Orange	24V973	PVDF	24L989
24W562	A	24K557	CSM	Orange	24V973	PVDF	24L990
24W563	A	24K557	CSM	Orange	24V973	PVDF	24L991
24W564	A	24K557	CSM	Orange	24V973	PVDF	None

** Food grade hose inner material is white in color.*

Pump Kit Matrix

Model EP3019 Pump Kits

With 19 mm ID Hose (installed) and Roller (not installed)

Pump Part No.	Roller Kit (Ref. 102)	Hose Kit (Ref. 103)	Hose Inner Material	Hose Stripe Color	Barbed Fitting Kit (Ref. 105)	Barbed Fitting Material	Motor and Gearbox (Ref. 107)
24L626	24K589	24K533	EPDM	Blue	24K592	SST	24L988
24L627	24K589	24K533	EPDM	Blue	24K593	Hastelloy	24L988
24L630	24K589	24K532	Natural Rubber	None	24K592	SST	24L988
24L631	24K589	24K537	CSM	Orange	24K592	SST	24L988
24L632	24K589	24K537	CSM	Orange	24K593	Hastelloy	24L988
24L633	24K589	24K534	Nitrile	Yellow	24K592	SST	24L988
24L634	24K589	24K534	Nitrile	Yellow	24K593	Hastelloy	24L988
24L640	24K589	24K533	EPDM	Blue	24K592	SST	24L987
24L641	24K589	24K533	EPDM	Blue	24K593	Hastelloy	24L987
24L644	24K589	24K532	Natural Rubber	None	24K592	SST	24L987
24L645	24K589	24K537	CSM	Orange	24K592	SST	24L987
24L646	24K589	24K537	CSM	Orange	24K593	Hastelloy	24L987
24L647	24K589	24K534	Nitrile	Yellow	24K592	SST	24L987
24L648	24K589	24K534	Nitrile	Yellow	24K593	Hastelloy	24L987
24L654	24K589	24K533	EPDM	Blue	24K592	SST	24L986
24L655	24K589	24K533	EPDM	Blue	24K593	Hastelloy	24L986
24L658	24K589	24K532	Natural Rubber	None	24K592	SST	24L986
24L659	24K589	24K537	CSM	Orange	24K592	SST	24L986
24L660	24K589	24K537	CSM	Orange	24K593	Hastelloy	24L986
24L661	24K589	24K534	Nitrile	Yellow	24K592	SST	24L986
24L662	24K589	24K534	Nitrile	Yellow	24K593	Hastelloy	24L986
24N079	24K589	24K533	EPDM	Blue	24K592	SST	None
24N080	24K589	24K533	EPDM	Blue	24K593	Hastelloy	None
24N083	24K589	24K532	Natural Rubber	None	24K592	SST	None
24N084	24K589	24K537	CSM	Orange	24K592	SST	None
24N085	24K589	24K537	CSM	Orange	24K593	Hastelloy	None
24N086	24K589	24K534	Nitrile	Yellow	24K592	SST	None
24N087	24K589	24K534	Nitrile	Yellow	24K593	Hastelloy	None

** Food grade hose inner material is white in color.*

Model EP4029 Pump Kits

With 29 mm ID Hose (installed) and Roller (not installed)

Pump Part No.	Roller Kit (Ref. 102)	Hose Kit (Ref. 103)	Hose Inner Material	Hose Stripe Color	Barbed Fitting Kit (Ref. 105)	Barbed Fitting Material	Motor and Gearbox (Ref. 107)
25L090	24K614	24K553	EPDM	Blue	24K617	SST	24L991
25L091	24K614	24K553	EPDM	Blue	24K910	Hastelloy	24L991
25L094	24K614	24K552	Natural Rubber	None	24K617	SST	24L991
25L095	24K614	24K557	CSM	Orange	24K617	SST	24L991
25L096	24K614	24K557	CSM	Orange	24K910	Hastelloy	24L991
25L097	24K614	24K554	Nitrile	Yellow	24K617	SST	24L991
25L098	24K614	24K554	Nitrile	Yellow	24K910	Hastelloy	24L991
25L104	24K614	24K553	EPDM	Blue	24K617	SST	24L990
25L105	24K614	24K553	EPDM	Blue	24K910	Hastelloy	24L990
25L108	24K614	24K552	Natural Rubber	None	24K617	SST	24L990
25L109	24K614	24K557	CSM	Orange	24K617	SST	24L990
25L110	24K614	24K557	CSM	Orange	24K910	Hastelloy	24L990
25L111	24K614	24K554	Nitrile	Yellow	24K617	SST	24L990
25L112	24K614	24K554	Nitrile	Yellow	24K910	Hastelloy	24L990
25L118	24K614	24K553	EPDM	Blue	24K617	SST	24L989
25L119	24K614	24K553	EPDM	Blue	24K910	Hastelloy	24L989
25L122	24K614	24K552	Natural Rubber	None	24K617	SST	24L989
25L123	24K614	24K557	CSM	Orange	24K617	SST	24L989
25L124	24K614	24K557	CSM	Orange	24K910	Hastelloy	24L989
25L125	24K614	24K554	Nitrile	Yellow	24K617	SST	24L989
25L126	24K614	24K554	Nitrile	Yellow	24K910	Hastelloy	24L989
24N123	24K614	24K553	EPDM	Blue	24K617	SST	None
24N124	24K614	24K553	EPDM	Blue	24K910	Hastelloy	None
24N127	24K614	24K552	Natural Rubber	None	24K617	SST	None
24N128	24K614	24K557	CSM	Orange	24K617	SST	None
24N129	24K614	24K557	CSM	Orange	24K910	Hastelloy	None
24N130	24K614	24K554	Nitrile	Yellow	24K617	SST	None
24N131	24K614	24K554	Nitrile	Yellow	24K910	Hastelloy	None

** Food grade hose inner material is white in color.*

Variable Frequency Drives (VFD)

VFD Part No.	Used With Pump	Horsepower	Input Voltage	Output Voltage
16K909	EP3019	1.5	120 or 240 Vac (1 phase)	240 Vac (3 phase)
16K910	EP3019	1.5	208–240 Vac (1 or 3 phase)	208–240 Vac (3 phase)
16K911	EP4029	2.0	208–240 Vac (1 or 3 phase)	208–240 Vac (3 phase)
16K912	EP4029	2.0	400–480 Vac (3 phase)	400–480 Vac (3 phase)

Notes

Technical Data

EP3 Pumps		
	U.S.	**Metric**
Maximum Fluid Working Pressure	125 psi	0.9 MPa, 9 bar
Motor Horsepower/Gear Ratio	See the Pump Matrix, page 22for the motor/gear ratio used on your pump: 1.5/35.91 1.0/100.36	
Maximum Pump Speed	50 RPM	
Maximum Environmental Temperature	122°F	50°C
Minimum Environmental Temperature	14°F	–10°C
Maximum Flow		
EP3019 Pump	2.4 gpm	9.1 lpm
Fluid Capacity per Revolution		
EP3019 Pump	0.048 gal.	0.18 liters
Hose Inner Diameter		
EP3019 Pump	19 mm	
Noise		
Sound Pressure	Less than 80 dB(A)	
Dimensions		
Height	16.65 in.	423 mm
Width with hose installed	13.52 in.	344 mm
Width without hose installed	11.81 in.	300 mm
Length	27.39 in.	696 mm
Weight	142.7 lb	64.9 kg
Fluid Inlet and Outlet Size	3/4 npt(m)	
Wetted Parts		
Pump	Powder coated aluminum.	
Hose	See the Pump Matrix, page 22.	
Barbed Fitting	Stainless steel or Hastelloy. See the Pump Matrix, page 22.	

EP4 Pumps		
	U.S.	**Metric**
Maximum Fluid Working Pressure	125 psi	0.9 MPa, 9 bar
Motor Horsepower/Gear Ratio	See the Pump Matrix, page 22 for the motor/gear ratio used on your pump: 2.0/19.70 2.0/34.29 2.0/79.72	
Maximum Pump Speed	130 RPM	
Maximum Environmental Temperature	122°F	50°C
Minimum Environmental Temperature	14°F	–10°C
Maximum Flow		
EP4029 Pump	19.5 gpm	73.8 lpm
Fluid Capacity per Revolution		
EP4029 Pump	0.15 gal.	0.56 liters
Hose Inner Diameter		
EP4029 Pump	29 mm	
Noise		
Sound Pressure	Less than 80 dB(A)	
Dimensions		
Height	19.35 in.	492 mm
Width with hose installed	16.86 in.	428 mm
Width without hose installed	15.91 in.	404 mm
Length	34.15 in.	868 mm
Weight	252 lb	114.5 kg
Fluid Inlet and Outlet Size	1–1/4 npt(m)	
Wetted Parts		
Pump	Powder coated aluminum.	
Hose	See the Pump Matrix, page 22	
Barbed Fitting	Stainless steel or Hastelloy. See the Pump Matrix, page 22.	

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

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In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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To place an order, contact your Graco Distributor or call to identify the nearest distributor.

Phone: 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

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Original Instructions. This manual contains English, MM 3A1939
For patent information, see www.graco.com/patents.

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